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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/072,959 05/05/98 PAN

P 2919.1US

MM91/0330

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EXAMINER

FOURSON III, G

ART UNIT

PAPER NUMBER

2823

DATE MAILED: 03/30/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/072,959

Applicant(s)
Pan

Examiner
George Fourson

Group Art Unit
2823



☒ Responsive to communication(s) filed on Jan 11, 2001

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-5, 11-17, 25-28, and 33-38 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-5, 11-17, 25-28, and 33-38 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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Claims 1-4, 11-14, 16, 25-27, 33-35 and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by Tsai et al.

Tsai et al discloses formation of dielectric layer 32 and buffer layer 34 over semiconductor substrate 30, patterning of layers 32 and 34, trench etching using the patterned layers as a trench mask, thermal oxidation of the trench walls, isotropic etching of layer 34, filling of the trench with silicon dioxide in which filling step the silicon dioxide is applied directly to the buffer layer, removal of a portion of the silicon dioxide and removal of the buffer layer 34 (fig.5a-5h).

Applicant argues the the reference does not disclose applying the filling material "directly" to the buffer material. However, the filling material is formed to contact the buffer layer at the recessed vertical surfaces of the buffer material.

Applicant argues that the limitation of claims 3, 13, 26 and 34 was not addressed in the office action mailed 10/11/2000. However, as stated in the office action mailed 10/11/2000, Tsai et al disclose isotropic etching of layer 34. Isotropic etching by definition includes etching in both horizontal and vertical directions, at least on the atomic scale. It would be expected that some localized variations in lateral etch rate would occur in such a process, at the interface with layer 36 for example, which would give rise to the recited vertical component of the etching at those location at that time.

Claims 5, 15, 28 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsai et al as applied to claims 1-4, 11-14, 16, 25-27, 33-35 and 37 above, and further in view of Pan et al.

Tsai et al does not disclose annealing of the trench fill material. Annealing of trench fill material is

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disclosed by Pan et al. It would have been within the scope of one of ordinary skill in the art to employ the process of Pan et al for its known intended purpose to achieve the trench filling step of Tsai et al

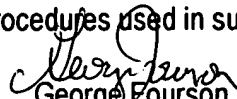
Claims 17 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsai et al as applied to claims 1-4,11-14,16,25-27,33-35 and 37 above, and further in view of the following comments.

Tsai et al discloses recessing layer 34 50-1000Å (col.5, line 36). See MPEP 2144.05.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956. **See MPEP 203.08.**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner George Fourson whose telephone number is (703) 308-2544. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (703) 308-4918. The fax number for this group is (703)308-7722(and 7724 and 7382). MPEP 502.01 contains instructions regarding procedures used in submitting responses by facsimile transmission.


George Fourson
Primary Examiner
Art Unit 2823

GFourson
March 25, 2001